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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,482

10/31/2005

Ragnar Bendiksen

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GE HEALTHCARE, INC.
IP DEPARTMENT
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EXAMINER

CHENG, JACQUELINE

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

04/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,482	Applicant(s) BENDIKSEN ET AL.	
	Examiner JACQUELINE CHENG	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's amendments have overcome the claim objections and the 35 U.S.C. 101 rejection. The claim objections and 35 U.S.C. 101 rejection of claims 3-5 and 11 and claims 1-9 and 11 respectively, has been withdrawn.
2. Applicant's arguments filed January 21, 2009 have been fully considered but they are not persuasive. The examiner respectfully disagrees with the applicant's arguments that Krishan does not disclose, teach or suggest the use of high energy ultrasound pulses as destruction pulses. In col. 3 lines 31-34 Krishan discloses that the destruction pulses are of high power pulses. Power of ultrasonic pulses directly corresponds to the energy of ultrasonic pulses. In fact Krishan further goes on to disclose in col. 8 lines 47-51 that the power used for the destruction pulses corresponds to a MI of 1.9. According to the applicant's specification high energy pulses correspond to high MI (page 2 line 18-20) and a high MI is of a level of between 0.2 and 1.9 (page 9 line 33-page 10 line 3). Since Krishan applies ultrasound at a high MI, Krishan applies ultrasound at a high energy.
3. The examiner also respectfully disagrees with the applicant's arguments that Krishan does not disclose, teach, or suggest that the triggering is done in such a way that the destruction pulse coincides with the R-wave of an ECG signal. When a pulse is triggered or gated by an ECG signal the pulse is immediately sent at the signal. There are systems that can impart a delay however in the case of Krishan, Krishan discloses that signal to pulse, or the trigger signal, is sent immediately upon recognizing the ECG signal, such as the R-wave, without delay (col. 7

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line 55-60). See, for example, fig. 2 and col. 3 line 28-35 of US 5,735,281 to Rafter which talks about triggering a frame off of the ECG signal (i.e. an R-wave, col. 3 line 49) and how it is shown in fig. 2 that this pulse triggering off of the R-wave is coincident with the R-wave.

Furthermore the applicant's own arguments/specification contradicts itself. The applicant argues that it is important for the initiation of the high energy ultrasound pulse to be at the R-wave (page 5 line 5-6), not the firing of the pulse to be coincident with the R-wave. The generation of the trigger signal is the initiation of the high energy ultrasonic pulse so since Krishan initiates the high energy pulse at the R-wave the invention of Krishan also avoids cardiac arrhythmia.

4. It is therefore believed that the rejection dated August 20, 2008 still stands and is repeated below. Also new objections to the claims have been made in view of the amendments.

Claim Objections

5. Claims 1 and 5-8 are objected to because of the following informalities: The applicant added "A m" but failed to delete the "M" in method. The claims currently read "A mMethod of". Appropriate correction is required.

6. Claim 1 is objected to because there is insufficient antecedent basis for the recited limitation "the ECG of the heart". Suggested claim language is --an ECG of the heart--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. **Claims 1, 5, 7, and 8** are rejected under 35 U.S.C. 102(a) as being anticipated by Krishnan (US 6,340,348 B1).

Krishnan discloses a method and apparatus for ultrasound contrast agent imaging which can be used for perfusion of blood in cardiac tissue (abstract). Krishnan comprises triggering a series of high-energy ultrasound pulses to destroy a contrast agent which has been administered to the subject (col. 2 line 32-37). The triggering can be based upon a physiological signal such as an R-wave of the ECG of the heart (col. 6 line 27-33, col. 7 line 55-58). After the destruction of the contrast agent a series of low energy imaging pulses are then triggered at a different point of the physiological signal (col. 2 line 46-50).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnan.

Krishnan discloses that the imaging pulses are triggered at a particular point of the physiological signal but does not explicitly disclose what point of the signal. Since the imaging pulse can be triggered at any particular point it would be obvious that the pulses can be triggered at the T-wave of the ECG of the heart.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

13. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACQUELINE CHENG whose telephone number is (571)272-5596. The examiner can normally be reached on M-F 10:00-6:30.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JC

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768